

Notice of Allowability

Application No.

10/776,076

Applicant(s)

DATTA ET AL.

Examiner

Thanhha Pham

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 09/26/2005 and interview dated 11/28/2005.
2. ☒ The allowed claim(s) is/are 12-14, 17-19 and 21.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

This Office Action is in response to Applicant's Amendment dated 09/26/2005.

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Michael Bernadicou on 11/28/2005.

The application has been amended as follows:

- In claim 21,
 - line 4, before "metal second layer" insert – copper –
 - line 6, before "metal second layer" insert – copper –
 - line 9, before "metal second layer" insert – copper –
 - line 11, before "metal second layer" insert – copper –

Allowable Subject Matter

1. Claims 12-14, 17-19 and 21 are allowed.
2. The following is an examiner's statement of reasons for allowance: Recorded Prior Art fails to disclose or suggest the combination of the process steps as recited in the base claim 12 including: forming a metal second layer under conditions to impart a compressive stress therein above and on the metal adhesion first layer; and forming a

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metal third layer above and on the metal second layer wherein the metal second layer comprises a copper and the metal third layer is selected from the group consisting of a refractory metal, a metal-doped refractory metal and a refractory metal alloy. Recorded Prior Art also fails to disclose or suggest the combination of the process steps as recited in the base claim 14 including: sputtering a copper metal second layer on the metal adhesion first layer under conditions to impart a compressive stress therein; and forming a metal third layer above and on the copper metal second layer under conditions to impart a compressive stress therein, wherein the metal third layer is selected from a group consisting of a refractory metal, a metal-doped refractory metal and a refractory metal alloy. Recorded Prior Art fails to disclose or suggest the combination of the process steps as recited in the base claim 18 including: sputtering a metal second layer under conditions to impart a compressive stress therein above and on the Ti metal adhesion first layer; and forming a metal third layer above and on the metal second layer wherein the metal second layer comprises copper and the metal third layer is selected from the group consisting of a refractory metal, a metal-doped refractory metal and a refractory metal alloy. Recorded Prior Art fails to disclose or suggest the combination of the process steps as recited in the base claim 21 including: sputtering a copper second metal layer under conditions to impart a compressive stress therein above and on the Ti metal adhesion first layer and forming a metal third layer above and on the copper metal second layer wherein forming the metal third layer comprises sputtering a NiV composition over the copper metal second layer.

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3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanhha Pham whose telephone number is (571) 272-1696. The examiner can normally be reached on Monday and Thursday 9:00AM - 9:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to be 'Thanhha Pham', with a stylized, cursive script.

Thanhha Pham